



To: Bryan Amman, City Attorney
City of Detroit

From: Peter Byrne, Director
Avion Solutions Group, LLC

Date: December 10, 2018

Re: DET Redevelopment and Modernization Program

Based on the October 30th meeting with the Mayor of Detroit, Avion Solutions Group (ASG) was directed to provide a narrative report supporting the planning concepts presented at the meeting. An initial narrative was provided to the City on November 13th, 2018. Comments were provided by the City to ASG. This revised narrative reflects the integration of the City's comments on the November 13th version and additional clarification and refinement made by ASG.

This in general follows the presentation slides to maintain consistency with the original concept. Beyond the presentation, additional information is included based on the land use planning that has been performed to support discussions with the Mayor. This narrative will form the basis of a presentation to the Federal Aviation Administration (FAA) to gain support of the conceptual plan for DET.

1) Program Concepts

The City of Detroit is in the midst of an economic resurgence. A key part of supporting this revitalization is having an airport that is positioned to support the corporate general aviation (GA) needs of the City. Coleman A. Young International Airport (Airport) is uniquely positioned to fulfill this role.

The City envisions a program at the Airport that will serve to redevelop and modernize the existing facilities that will meet or exceed the level of service provided by corporate general aviation airports that serve large metropolitan cities throughout the U.S. The City's Vision for the Redevelopment and Modernization of DET is:

The City will redevelop and modernize DET into a state-of-the-art, economically sustainable Regional General Aviation airport serving businesses, the local community, and the metropolitan area.

In order to make the Vision a reality, the City will undertake a series of actions that will improve the Airport while supporting development goals of the City. This is summarized in the following mission statement:

The DET Redevelopment and Modernization Program will ensure safe aeronautical operations; serve the region's growing corporate general aviation; unlock potential aeronautical-related development proximate to DET; and transform DET from a fiscal liability to a job-creating and revenue producing economic growth engine for the City of Detroit.

In general, the improvements under consideration by the City include priority projects related to safety and standards enhancements and creating opportunities for aeronautical development to improve the economic sustainability of the Airport. The safety and standards projects include enhancements to the Runway Safety Areas (RSA) and airfield geometry to meet applicable Federal Aviation Administration (FAA) standards, and rehabilitation of the primary runway pavement, which has reached its useful life.

To improve the Airport's economic potential, the City is considering the development of substantial portions of land, that the City presently owns, for Airport use. This land would be used for aeronautical and non-aeronautical functions, such as corporate general aviation (hangars, offices, flight departments), fixed-base operator (FBO) development (aircraft servicing and fueling facilities), aircraft maintenance facilities, and aeronautical trade schools. The safety and standard projects and land development are combined into an overall program referred to as the Airport Redevelopment and Modernization Program.

The Airport Redevelopment and Modernization Program requires multi-level coordination between the City and the FAA to address the airport planning, engineering, financial, and environmental issues associated with this effort. The City is proposing to meet with FAA officials to gain approval in concept of a redevelopment plan for the Airport.

To accomplish this, the City has prepared this narrative that lays out the reasoning and justification for the proposed actions at the Airport. This will serve as the basis for discussions with the FAA. It is anticipated that the issues described here will be subject to further study to substantiate the City's position and to address FAA concerns over the operational safety, planning, financial, legal and environmental issues associated with this plan.

2) Airport Role and Design Aircraft

The FAA and the State of Michigan define the role of the Airport as a general aviation airport providing regional access to the National Airspace System (NAS).

The FAA's National Plan of Integrated Airport Systems (NPIAS)¹ classifies DET as a non-primary publicly owned regional general aviation airport (i.e. Regional Airport). This role defines the facility as located in a metropolitan area serving a large population, typically used by general aviation aircraft. Furthermore, Regional Airports typically support the regional economy through interstate and long-distance operations of multi-engine propeller and jet aircraft.

In the 2017 Michigan Airport System Plan (MASP)², the State assigned 226 public and private airports to one of three tiers, based on an airport's ability to respond to state goals and objectives. The Tiers were defined as follows:

1. Tier 1 airports respond to essential/critical state airport system goals and objectives. *These airports should be developed to their full and appropriate level.* A total of 86 airports are classified as Tier 1 airports.
2. Tier 2 airports complement the essential/critical state airport system and/or respond to local community needs. Focus at these facilities should be on maintaining infrastructure with less emphasis on facility expansion. A total of 28 airports are classified as Tier 2 airports.
3. Tier 3 airports duplicate services provided by other airports and/or respond to specific needs of individuals and/or small businesses. These facilities are secondary to meeting the overall state system goals and often receive only minimal safety enhancements, such as runway markings and wind cones. A total of 112 airports are classified as Tier 3 airports.

In this process, DET was identified as a Tier 1 airport. Tier 1 airports include passenger commercial service airports and general aviation airports that provide access to the NAS. A Tier 1 airport has the following characteristics: serves significant population centers, serves significant business centers, serves significant tourism/convention centers, provides access to the general population, provides adequate land area coverage, preserves regional capacity, serves seasonally isolated areas, and is included in the NPIAS. In addition to these qualities, DET also provides a full-time air traffic control tower, airfield rescue and firefighting capacity and customs and border protection services.

In addition to the NPIAS-defined role, FAA uses a classification system called the Airport Reference Code (ARC) to establish airport characteristics based on the size and type of aircraft that operate at an airport³. The ARC is used for planning and design only and does not necessarily limit the aircraft that may be able to operate safely on the airport.

The ARC for an airport is established based on two key characteristics of airplanes operating at the airport: the approach speed and the wingspan. Approach speed is classified by a lettering

¹ The National Plan of Integrated Airport Systems (NPIAS) is an inventory of U.S. aviation infrastructure assets. NPIAS was developed and is maintained by the FAA. It identifies existing and proposed airports that are significant to the national air transportation in the U.S., and thus eligible to receive federal grants under the Airport Improvement Program.

² 2017 Michigan Aviation System Plan (MASP), Michigan Department of Aeronautics, adopted by the Michigan Aeronautics Commission in July of 2017.

³ Airport design standards are established by the FAA in Advisory Circular (AC) 150/5300-13A - *Airport Design*.

system (A – E) and wingspan by a numbering system (I-VI). An airport's ARC is determined by the critical aircraft (aircraft with the longest wingspan, and the fastest approach speeds) that makes "regular use" of the airport. According to an airport user survey⁴, the existing ARC at DET is C-II.

An ARC of C-II classifies the Airport as one that can accommodate aircraft with wingspans of up to 79 feet and approach speeds of up to 141 knots. Some examples of types of aircraft currently operating at DET which are classified as C-II include the EMB-300, Cessna Citation X, and the Hawker 800. These aircraft would be categorized as medium-sized corporate jets, with a range of 2,000-3,000 miles – more than enough to reach all parts of the continental United States and parts of Alaska.

3) Operations

Operations at DET have decreased over the past 20 years as reported by the FAA. Figure 1 shows the operations as broken down into Local Operations⁵ and Itinerant Operations⁶ and the specific classes of operations at the Airport – air carrier, air taxi, general aviation, etc.

Figure 1: FAA Air Traffic Activity Database System (ATADS)⁷

Calendar Year	Itinerant					Local			Total Operations
	Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	
1998	8,189	8,098	68,538	253	80,076	43,336	28	43,364	123,440
1999	8,399	10,136	91,327	778	111,640	42,160	20	42,180	153,820
2000	4,336	10,169	96,998	814	112,317	41,418	97	41,515	153,832
2001	1	6,508	49,364	827	56,700	27,090	21	27,111	83,811
2002	24	6,139	44,461	1,330	51,954	20,454	2	20,456	72,410
2003	132	5,801	45,209	1,471	52,613	26,183	4	26,187	78,800
2004	223	5,758	41,080	1,554	48,615	33,902	16	33,919	82,533
2005	125	4,661	37,769	1,389	43,944	30,924	6	30,930	74,874
2006	220	3,312	40,632	2,020	46,184	35,296	29	35,325	81,509
2007	130	3,399	30,650	1,288	35,367	30,995	71	31,066	73,647
2008	14	2,356	13,822	36	16,228	32,611	42	32,653	62,114
2009	0	1,701	26,458	95	28,254	41,523	308	41,831	70,085
2010	9	1,775	25,642	88	27,514	38,632	56	38,688	66,202
2011	0	2,045	22,476	67	24,589	33,746	90	33,836	58,425
2012	2	2,029	21,313	90	23,434	32,078	148	32,226	55,660
2013	1	1,754	20,731	139	22,625	31,795	160	31,955	54,580
2014	63	1,897	18,107	210	20,277	24,810	146	24,956	45,233
2015	2	1,753	17,212	169	19,136	25,254	60	25,314	44,450
2016	0	1,764	17,911	193	19,868	21,870	296	22,166	42,034
2017	0	1,875	17,028	172	19,075	18,013	176	18,189	37,264

⁴ Coleman A. Young Airport, User's Survey, QOE Consulting, November 6, 2015

⁵ Local Operations - operations performed by aircraft in the local traffic pattern or within sight of the airport; are known to be departing for or arriving from flight in local practice areas located within a 20-mile radius of the airport; or execute simulated instrument approaches or low passes at the airport.

⁶ Itinerant Operations are all operations that are not Local Operations.

⁷ The FAA Air Traffic Activity Data System (ATADS) contains the official National Airspace System (NAS) air traffic operations data available for public release

As shown in Figure 1, operations have dropped from a high of 123,440 in 1998 to the current 37,264 in 2017⁸. This significant reduction in operations has been driven by internal and external forces such as: the shifting of commercial airline operations from DET to DTW, the ability of the Airport to accommodate changes in the airline industry (e.g. use of larger aircraft), airline consolidation, and national or regional economics.

However, delving into the data shines a different light onto current operations and the potential future of DET. The ATADS database (Figure 1) is satisfactory for examining overall airport activity. To better understand the nature of these operational numbers, it is necessary to review the types of aircraft that make up these operational counts. There are several ways to accomplish this: interview the tower staff, and interview or survey the aircraft operators. These methods may be effective but can take time and can be subjective. For planning purposes, an efficient and objective method of determining the type of aircraft operations occurring at an airport is to access the FAA's Traffic Flow Management System Count (TFMSC).

TFMSC data set is reliable and objective as it is reported from FAA air traffic sources and flight plans. On the other hand, it is not fully representative of the total operations that occur on an airport. For example, because the TFMS is reliant on pilots filing flight plans, it is very good at capturing IFR operations. However, local flights under VFR would not be captured. Fortunately, this limitation is not significant as local VFR flights are most likely conducted by small, single engine aircraft flying for recreational purposes. Because of this, the TFMS is very good at providing a snap-shot of the operations that are most demanding of an airport's facilities.

In addition to the number of operations, the TFMS system is a reliable resource when compiling an analysis of airport fleet mix. The system includes information about commercial traffic (air carriers and air taxis), general aviation, and military aircraft operations to and from every airport that participate in the TFMS system⁹.

The general aviation users at DET consist of a vast array of aircraft types and operating characteristics. This can range from intercontinental businesses jets to small home built single engine piston aircraft. For this reason, the fleet mix at DET was analyzed separately into categories which focus on aircraft type and provide a more detailed overview of the operating characteristics of DET.

The TFMS query tools allow the data to be broken up into piston, turbo-prop (turbine), and jet operations. In reviewing the DET TFMS database for 2017, operations have been broken down as follows:

- Jet traffic – 59 percent
- Turbo-prop (turbine) – 20 percent
- Piston – 21 percent

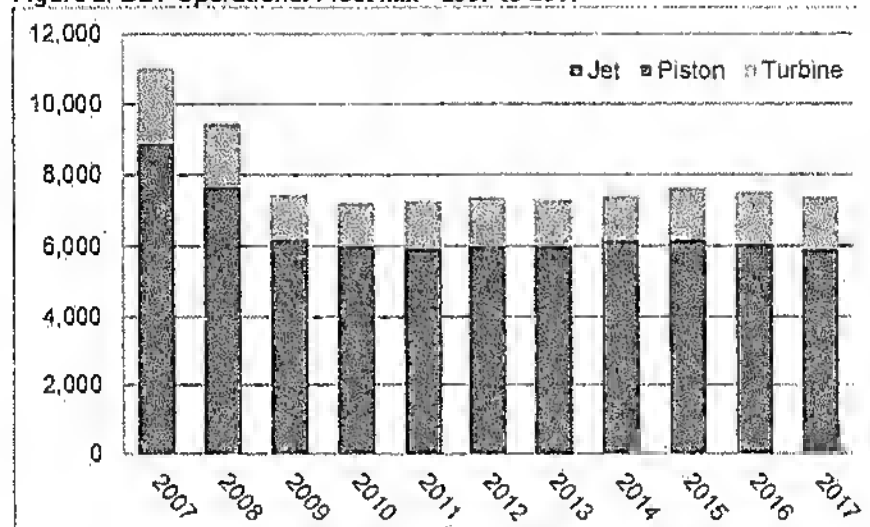
⁸ 2017 is the last full year available for operations data. The FAA will update this database to include 2018 data by February 2019.

⁹ TFMS source data are created when pilots file flight plans and/or when flights are detected by the National Airspace System (NAS). This tool allows the user to query and filter data using variables such as equipment type, user class (ex. Air Carrier vs General Aviation).

The number of TFMSC operations at DET has remained relatively stable¹⁰ over the previous ten years. An exception is a notable drop in operations of categories of aircraft between 2007 and 2009. This is likely due to the great recession and its significant effect on general aviation.

However, since 2009 the operational fleet mix demographics at DET have been shifting. During that period, the market share of piston aircraft operations at DET has fallen from 32 percent in 2007, to 20 percent in 2017. Over the same time period, jet operations have grown from 50 percent to 59 percent. Turbo-prop (turbine) operations have remained relatively steady during this time frame. Figure 2 depicts DET's operational fleet mix market share relative to overall operations over the previous ten calendar years.

Figure 2: DET Operational Fleet Mix - 2007 to 2017



Source: FAA TFMSC CY 2007-2017 and Consultant Calculations

The data presented in Figures 1 and 2 illustrate how the role of the Airport has shifted over the past 20 years and how the operational characteristics of the Airport continues to evolve. Figure 1 shows the reduction in commercial service and in general aviation. The commercial service reductions were caused by changing airline behavior, while the reduction in general aviation is mainly due to the national trend of fewer general aviation operations by light piston aircraft.

Meanwhile, in recent years, there has been a modest increase in general aviation operations that appears to be driven by corporate jet aircraft. This is reflective of national trends and, possibly, increased economic opportunities from renewed development interests that have come to Detroit since the City has emerged from bankruptcy.

¹⁰ Again, it must be stressed that TFMSC data relies on operations where pilots file flight plans and is therefore not fully representative of the total operations that occur on an airport.

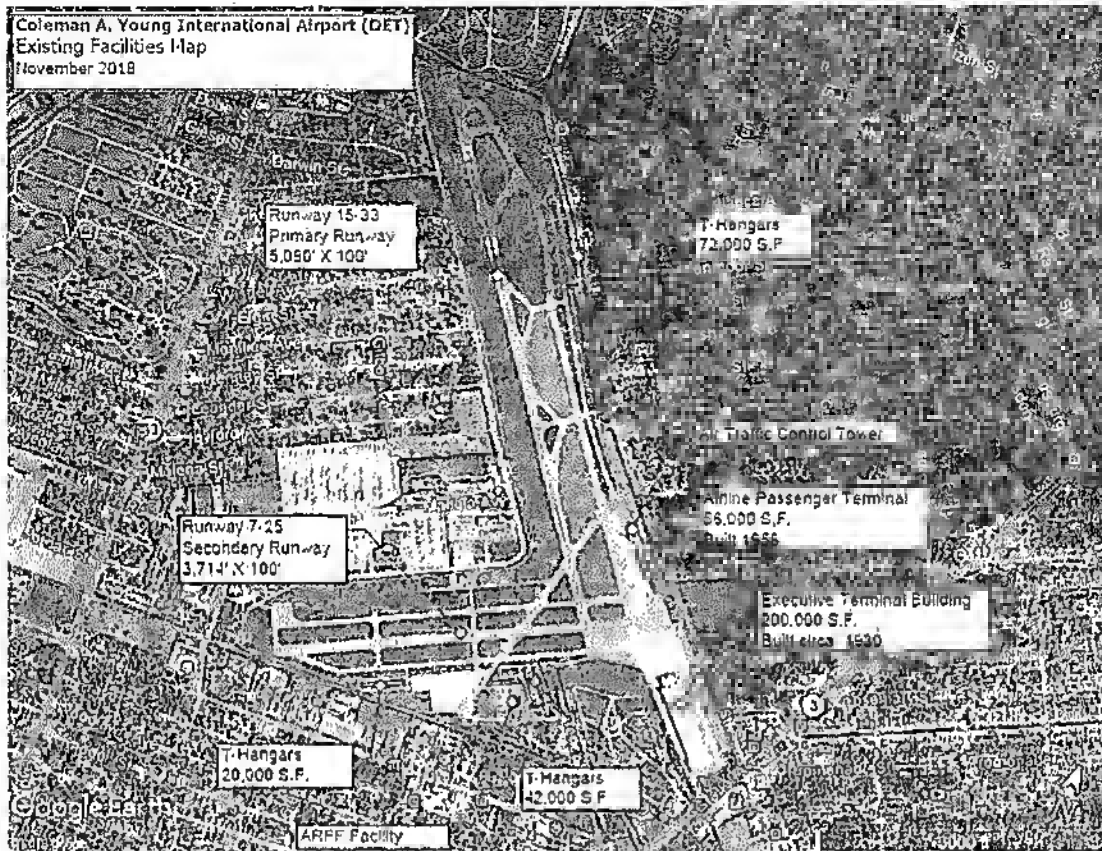
4) Existing Conditions and Characteristics

DET opened in 1927 as Detroit City Airport and presently encompasses 264 acres. The Airport was originally configured for commercial passenger operations and provided scheduled airline service from the time it opened until 2000, when the last airline – Pro Air, ceased service.

The Airport has a full-time air traffic control tower that is operated under the FAA's contract tower program. Facilities on the Airport include:

- **Executive Terminal Building:** The building features art-deco design and comprises 200,000 Square Feet (SF), along with aircraft hangar bays. As the original passenger terminal, the building houses open spaces for hold rooms and airline offices. The building is partially used for aircraft parking and equipment storage. Although the building is architecturally pleasing, it would require significant rehabilitation and modernization for current uses.
- **Passenger Terminal Building:** This 56,000 SF building opened in 1965 and is currently used as offices and public space. The building, which reflects airline terminal services from that time period, is obsolete and does not have modifications that reflect post 9/11 features and standards. Vehicle curb frontage is very limited compared with a modern terminal. The current uses are very inefficient given the size of the facility.
- **General Aviation Hangars:** There are presently 135,000 SF of T-Hangars throughout the Airport. These hangars were constructed in the late 1940's. The hangars have not been maintained to any standard. Approximately 75 percent are unusable and in decrepit condition.
- **Airfield Capabilities:** As a former commercial service airport, DET is equipped to serve scheduled commercial jet aircraft operations. DET has an instrument approach supported by an Instrument Landing System (ILS) with precision approach capabilities. The Airport does not have an approach light system which would provide for full precision instrument landing minimums. A Medium Intensity Approach Light System with Runway Alignment Indicator Lights (MALSR) would be required for full ILS minimums.
- **Airfield Pavement:** DET has an extensive taxiway system. There are full-parallel taxiways for both runways and there are high-speed taxiway exits at three points along the length of Runway 15-33. There are aircraft parking ramps adjacent to the former passenger terminal building and an aircraft ramp adjacent to the Executive Terminal Building.

Figure 3: Existing Facilities



5) Challenges

The Airport is facing challenges that will require significant capital investment to resolve. From an airport infrastructure perspective, the Airport must address several critical issues:

- **Runway Safety Area (RSA)** – The existing RSA for Runway 15-33 (the primary runway) does not meet current FAA design standards. One potential resolution to accommodate FAA runway safety standards would be to tunnel McNichols Road under the extended runway center line. This would allow McNichols Road to reopen and restore continuity within the community. However, due to the potential high-cost of depressing McNichols Road to accommodate the RSA, the FAA would require a review of possible RSA options and a Benefit/Cost Analysis that demonstrates the financial feasibility of this solution.
- **Taxiway A Reconfiguration** – Taxiway A, the Airport's parallel taxiway that serves the primary runway, does not meet the FAA design standards for alignment, separation standards, and ramp to runway access for incursion prevention.

- **Airfield Pavements** – The runway pavements have reached the end of useful life. According to the MASP, the runway pavement exhibits a Pavement Condition Index (PCI)¹¹ of 50 which indicates that major rehabilitation is required¹². The existing taxiway pavements exhibit a PCI of 91, which indicates that preventative maintenance is required. However, due to the non-standard configuration of the taxiways, these pavements will need to be relocated and reconstructed.
- **The airfield does not reflect the current needs and role of the Airport** – As described in Section 2, the proportion of single-engine aircraft operations are decreasing. At the same time, business and corporate aviation has stabilized and is increasing. The facilities required to properly serve the business aviation sector are not fully present at DET. As noted above, airside facilities do not meet FAA standards, pavements need reconstruction, and airport buildings are obsolete.

All of these projects are potentially eligible for funding under the FAA's Airport Improvement Program (AIP). These grants would provide up to 90 percent federal funds to support AIP eligible projects. In addition, as discussed above, a benefit/cost analysis may be needed before FAA funds can be provided for some of these projects.

In addition to the infrastructure issues described above, the Airport faces several additional critical challenges:

- **Airport is not financially self-sufficient** – Airports generate revenue through several streams. These include landing and hangar storage fees, lease agreements (land and buildings), fuel flowage fees, and concession agreements. However, the poor condition of airport infrastructure, the previously lagging economy, and other factors have not provided an attractive environment for aircraft and associated businesses.
- **Lack of developable or leasable land** – Long term lease agreements for airport land and buildings is one way an airport generates long-term revenue in order to underpin its operation and invest for the future. Long-term leases also facilitate private investment in the airport. This private investment could be used for the rehabilitation of existing facilities or the development of new facilities on the airport.

DET has very little developable land that could be used for leases or other revenue generation. Of the Airport's 264 acres, approximately 75 percent is unavailable for development due to airfield needs and FAA obstruction clearance standards. Other airports of similar function have much more available land. Table 1 provides a comparison of similar airports to DET.

¹¹ Airport pavements are inspected and assigned a Pavement Condition Index (PCI) value between 0 and 100 that indicates the present condition of airport pavements. The higher the number the better the pavement condition. The PCI can be used to plan and program runway and taxiway rehabilitation projects. A PCI greater than 70 is considered acceptable and the pavement only needs ongoing preventative maintenance. Less than 70 requires rehabilitation.

¹² 2017 Michigan Aviation System Plan (MASP), Michigan Department of Aeronautics, Section 2.3, page 2.8

Table 1: Airport Land Available for Development Comparison

AIRPORT	CODE	ACRES
Coleman A. Young Int. Airport	DET	264
Teterboro Airport	TEB	827
Westchester County Airport*	HPN	702
Van Nuys	VNY	725
Dallas Love Field*	DAL	1300
Palm Beach International*	PBI	2100
Dekalb Peachtree	PDK	745
Houston Hobby	HOU	1300

* Indicates airports that have mostly general aviation traffic, but also accommodate some scheduled airline service.

- **Pressing need for off-airport industrial development** – With the surging economy and an increasing need for industrial development, there are portions of the Airport that would be better suited for uses other than aviation. These parcels of land are adjacent to rail lines that could be more efficiently used by industrial facilities rather than go under-utilized by the Airport.

6) Potential Solutions – The Airport Redevelopment and Modernization Program

The status quo for DET is not sustainable. If nothing is done, the airport infrastructure will continue to deteriorate. Airport operations and associated revenues will remain stagnate or will decline. Ultimately, operational safety could be a concern. In addition, opportunities for enhancing airport revenue through lease development will vanish. In short, the Airport will not be able to fulfill its role as a Regional Airport.

At this time, however, there is an opportunity for a renewal of DET. If properly planned and implemented, it is possible for DET to realize its potential as described in its vision statement. To do this, the City envisions a series of airside and landside improvements that would be included in the Airport Redevelopment and Modernization Program. These improvements will align the Airport with its role as defined by the FAA and the 2017 Michigan State Aviation System Plan. There are five keystone elements to this Plan.

1. Close Runway 7-25 and transfer the property to the City

The Plan proposes that Runway 7-25 be closed, and 86 acres of current airport property be transferred to the City. The available land will be used to support industrial development. The transferred land represents a unique and high priority development opportunity to the City. Unlike any other location, it is adjacent to a key rail spur and to the Airport. It is essential to the overall economic development strategy for this area of the City.

Runway 7-25 is not essential to airport operations, nor to DET's role in the NPIAS as a Regional Airport. It is relatively short – only 3,700 feet long – and cannot be feasibly extended or otherwise improved. The Runway Safety Areas could not be enhanced, and

the costs of acquiring property in the Runway Protection Zones would be high, relative to the very limited benefit the runway provides.

Operations on this runway are limited to small general aviation aircraft; as noted earlier, this activity has been decreasing significantly. Initial research with airport users and the Airport Traffic Control Tower staff indicates that this runway is used less than 10 percent of the time, and only used due to wind conditions for about five percent of the time by light-single engine aircraft.

To further examine the need for Runway 7-25, a preliminary analysis was performed on local wind conditions. Prevailing winds at an airport dictate runway usage as aircraft must land and takeoff into the wind. Crosswinds occur during periods when winds are not aligned with the runway centerline – winds are blowing from the left or right relative to the centerline of the runway. Aircraft are able to operate on a runway during crosswind conditions to a limited extent. An aircraft's ability to operate during crosswind conditions is referred to as its crosswind component. Crosswind capability varies depending on the size and power of the aircraft. For example, larger more powerful aircraft can operate during greater crosswind periods than smaller and less powerful aircraft.

The appropriate crosswind components for DET's runways were determined by the type of aircraft typically operating on those runways. As discussed earlier, the design (critical) aircraft for DET is an ARC C-II aircraft (Hawker 800). Table 2 depicts the wind percentages in VFR, IFR, and All-Weather conditions when considering a 16-knot crosswind component for Runway 15-33.

Table 2: Runway 15-33 16 Knot Crosswind Coverage¹³

	IFR	VFR	All Weather
Runway 15-33	98.33	98.27	98.74

The FAA indicates that the desired wind coverage for an airport is at least 95 percent, meaning that the maximum crosswind component is not exceeded more than 5 percent of the time. Therefore, when a runway orientation provides less than 95 percent wind coverage for the aircraft which are forecast to use the airport on a regular basis, a crosswind runway may be required.

At DET, Runway 15-33 maintains higher than 95 percent wind coverage in VFR, IFR and All-Weather conditions for the 16-knot crosswind required for the ARC C-II facility. Hence, Runway 15-33 can function as a single runway facility designed for C-II aircraft while fulfilling its role as a Regional Airport.

As the aircraft fleet mix continues to change to corporate aviation, the use of Runway 7-25 can be expected to decrease. In addition, there are several airports proximate to

¹³ Source: 16 Knot Crosswind Component, Station 725375, DET, 2008-2017

DET that are better suited to accommodate small general aviation operations and would benefit from the potentially increased operations.

Given these combination of factors, closure of Runway 7-25 appears feasible and will allow other key elements of the Plan to proceed.

2. Rehabilitate Runway 15-33 and enhance RSA's

As noted in Section 5, the existing RSA for Runway 15-33 does not meet current FAA design standards. In this Plan, the City commits to completing an RSA Study to identify options and define feasible actions. Preliminarily, the City is exploring the tunneling of McNichols Road under the north end of Runway 15-33. Besides enhancing safety by allowing 405 feet of the existing runway to become useable, the existing non-compliant taxiway would be reconstructed to meet FAA standards. As well, a key secondary objective will be to reopen McNichols Road and reconnect the adjacent community. If necessary, this study will include a Benefit/Cost Analysis to demonstrate the financial feasibility of the preferred alternative.

Once the proper RSA alternative is identified, the City will determine the timeline for rehabilitating Runway 15-33. The timing for this work has to be integrated to the RSA improvement plan and availability of funding.

3. Transfer 196 acres from the City to the Airport

In exchange for the 86 acres related to the closure of Runway 7-25, the City would expand airport property west to Van Dyke Road, for a total of 196 acres. Most of the land is vacant residential; therefore, the zoning would be changed to allow for aviation related use.

4. Modernize the Airport East Side and Redevelop for Light G/A Use

The existing airport landside area east of Runway 15-33 would be modernized to meet the current needs of the aviation community. This program needs to be developed in detail, but could include:

- Renovate and rededicate the Executive Terminal Building
- Demolish the obsolete passenger terminal
- Demolish 1940's era T-hangars and construct modern T-hangars
- Reconfigure the existing ramp and tie-down area
- Add self-fueling facilities

5. Construct a New Taxiway and Develop the West Side for Corporate and FBO use¹⁴

As part of this Plan, a new full-length parallel taxiway could be constructed west of Runway 15-33. This new taxiway would provide access to the newly acquired west side. A wide range of development options could be pursued, including:

¹⁴ See attached graphic.

- New corporate G/A complex with hangars and terminal
- Maintenance and storage hangar area
- Possible aeronautic/vocational training facility

At the conclusion of this program, the Airport will consist of 374 acres as compared with 264 today. The Airport will meet current FAA safety and design standards, be aligned with its role as defined by the FAA and the State of Michigan, provide development opportunities that are in-demand based on growth and operational trends, provide modern facilities for corporate and community interests, and improve its economic sustainability through increased revenue potential.

7) Estimated Costs and Potential Employment Opportunities

This section provides a high-level estimate of the development costs and potential job creation for the Airport Redevelopment and Modernization Program. The estimates provided in this section were derived based on ASG's experience with similar airport development programs. However, this is a high-level estimate for planning purposes only. Should this program move forward, a NEPA analysis will have to be performed that will include a detailed socio-economic section that will provide comprehensive and detailed economic impacts of the proposed project.

As part of the planning that went into developing the Airport Redevelopment and Modernization Program, some thought was given to identifying the type of development that could occur on the 196 acres. The stated role of the Airport and the need to modernize the Airport to meet the needs of the City and the community, helped to frame the type and nature of the proposed development.

The development of the 196 acres represents the potential to transform the western portion of the Airport. This development would accommodate corporate general aviation activity with facilities designed to support operations, aircraft maintenance and aircraft storage, while providing an efficient airfield access from Runway 15-33. All proposed development would accommodate ADG C-II aircraft.

Table 3 represents the full buildout of the 196 acres over an approximately eight-year period. The type of development proposed is similar in nature to other related airports in large metropolitan areas. The total estimated cost of this level of development is in the \$123,000,000 range. Some of this development could potentially be funded by FAA AIP grants. In particular the pavements (aprons and taxiway), FBO building and the light GA hangars.

Table 3: Proposed Development Plan Summary

Proposed Development	Amount	Area	Unit
Pavement			
Apron	1	27.42	Acres
Parallel Taxiway (5,090' X 75')	1	8.76	Acres
Runway Safety Area (RSA)	1	2.01	Feet
Total Pavement		38.19	Acres
Facilities			
FBO Building	1	140,000	S.F.
Executive Hangars (w/office)	6	101,058	S.F.
Flight Department Hangars	6	86,400	S.F.
Aircraft Mx. Hangars	2	36,000	S.F.
Cabin Class Hangars	29	163,125	S.F.
MRO Facility	1	26,700	S.F.
MRO Hangar	1	9,900	S.F.
Light GA Hangar	17	42,500	S.F.
Total Facilities	63	605,721	S.F.

The potential for job growth resulting from this development is significant. Again, relying on data from general aviation development projects serving airports in large metropolitan areas, a preliminary estimate of the employment potential can be made. The labor potential comes from several areas. Overall, the program will include temporary jobs related to the construction and operation of the new facilities. However, there are also secondary job creation that comes from others in supporting roles. These include suppliers of goods and services that would also benefit from development. The temporary jobs created from the project are shown in Table 4:

Table 4: Preliminary Construction Related Benefits

Construction	Employment	Labor Income	Value Added	Business Revenue
Direct Effect	337	\$ 25,908,467	\$ 32,498,570	\$ 122,643,250
Suppliers of Goods and Services	221	\$ 12,608,357	\$ 21,771,782	\$ 34,905,872
Re-spending of Income	355	\$ 17,436,795	\$ 33,360,956	\$ 51,766,206
Total	913	\$ 55,953,619	\$ 87,631,309	\$ 209,315,328

The Direct Effect is the employment of construction workers on the project. The Suppliers of Goods and Services would be providing materials to support the construction workers, and re-spending of income would occur when construction workers and suppliers spend their earned income within the City economy (food, housing, etc.). The Employment number represents the number of individuals who would be involved on the program and providing their skills and labor to execute the construction work. The Labor Income is the wages and salaries earned on the project. Value Added is a measure of the salaries, wages, taxes paid, that contribute to the gross state product.

Along with the temporary construction benefits, the long-term employee potential of the project must also be considered. Corporate general aviation involves more than just pilots. There are a substantial number of supporting jobs that go along with getting the aircraft off the ground. As

with the Construction Related Employment estimates contained in Table 4, over the eight-year development period, it could be expected that total permanent employment could reach 1,605 permanent positions as shown in Table 5.

Table 5: Expected Long-Term Jobs by Occupation

Expected Jobs by Occupation	Jobs	Percent of Total
Management/Finance	80	5.00%
Flight planning and logistics	112	7.00%
Pilots/Flight Attendants	642	40.00%
Building Maintenance	64	4.00%
Aircraft Maintenance	482	30.00%
Line Service/FBO	225	14.00%
Total	1605	100.00%

It is apparent from Table 5 that Pilots/Flight Attendants and Aircraft Maintenance are anticipated to constitute the substantial majority of jobs, accounting for 70 percent of those expected. Most of the balance falls into air service support including FBO management, line servicing, flight planning and logistics.

In summary, the proposed Airport Redevelopment and Modernization Program would provide significant employment opportunities for both temporary positions and long-term employment. Considering the program would be constructed over an eight-year period, approximately 913 construction related jobs would be created. At full buildout, approximately 1,605 positions could be created. Again, these estimates are preliminary and based on airport projects carried out in other large metropolitan areas. An economic analysis specific to Detroit and DET would be performed as part of the NEPA process.

8) Program Planning and Environmental Review Process

This proposed Program will require multilevel coordination between the City and the FAA to address the airport planning, engineering, financial, and environmental issues associated with this effort. The Airport is currently in the process of updating its ALP. The City proposes to include this conceptual development plan on the draft ALP for FAA review. The City understands that separate studies may be required that would support the ALP. These studies could include:

- a) RSA or Airside Alternative Analysis Study
- b) RSA Benefit/Cost Analysis
- c) Taxiway design study for the realignment of the 15/33 parallel taxiway and the planning for the new parallel taxiway for the western development.

In addition to these planning studies, it is critical to understand future activity that could occur at DET. Therefore, it is recommended that a comprehensive airport forecast report be developed to support the program. Projections of airport activity on an annual basis over the next twenty years will be developed and would consider key indicators such as:

- a) Aircraft operations projections
- b) Fleet mix and based aircraft
- c) Fuel flowage estimates

The forecast would identify socio-economic drivers of demand, specifically for DET. The results of the forecast would be compared with FAA Terminal Area Forecasts (TAF) to ensure validity and for applicability of the forecasts to support FAA planning and environmental documents. The forecasts will also be used to identify facility needs such as hangars, maintenance facilities, and other aeronautical related development such as aviation schools.

A capital improvement plan detailing major investments in airport infrastructure along with cost estimates will be developed that reflect planning, engineering and construction cost estimates for all proposed development. The City understands that this data is needed to support the Capital Improvement Plan and potential cost analysis needed to justify projects.

Furthermore, the City will seek AIP grant funds for eligible portions of this program, particularly those projects that involve safety and standards, airfield pavements, and facility demolition. As needed, the City is prepared to conduct the necessary environmental reviews in accordance with FAA National Environmental Policy Act (NEPA) requirements. The City will meet with the FAA and discuss the appropriate level of documentation required for this program.

9) Next Steps

The City will seek approval from the FAA to advance this Program beyond the conceptual planning stage and begin coordination with the FAA line of business related to:

- a) Planning
- b) Environmental
- c) Air Traffic (ATO) and Airway Facilities

Further, the City is seeking FAA concurrence to initiate the transfer and redesignation of 196 acres of City owned land to the Airport, and the transfer of 86 acres of Airport property to the City. As part of this process, the City will revise the Airport's Exhibit A Property Map, update the ALP and conduct the necessary NEPA documentation.